2012 Coastal Grant Project Descriptions

LAND ACQUISITION:

CSX Property Acquisition at Oak Ridge Prairie County Park – Lake County Parks Department
LMCP Share - $150,000; Applicant Share - $150,000

The goal of this project is to acquire 95 acres of varied rare habitats and future non-motorized trail corridors in the southwest corner of Oak Ridge Prairie from CSX. This property has been in the parks vision plan for more than 30 years. Acquisition of this property will protect several rare plant communities to our region including: dry mesic sand forest, ridge-swale sand forest, dry mesic sand savanna, marsh, and other wetland plant communities. At least half of these 97 acres have not been disturbed since 1938. The Natural Land Institute completed a botanical survey of this property several years ago. They verified at least 8 state listed species. In the report it was stated that this property is an area that is extremely rare and of paramount importance, also the dry-mesic savanna is high grade. This property is bisected by the abandoned Reder Road that will be used in the future to link the two longest and busiest non-motorized trail corridors in Lake County. They are the Oak Savannah and Erie Lackawanna Trails. A future 1.25 mile long abandoned rail corridor called the C & 0 lies along the entire south border of the CSX property, and it is owned by NIPSCO. In addition, work may be done with NIPSCO in the coming year to bring these 15 acres of land under park management. The C & 0 Trail is partially built in downtown Merrillville, and in the future will link downtown Griffith with central Merrillville and the Westfield Shoppingtown Southlake in Hobart. The CSX acquisition will provide a passive natural area for trail users to enjoy as they use the C & 0 and the OST / EL connection trail in the future. Park nature trails will also be extended into the CSX property to give park users many more opportunities for recreation and the enjoyment of the many species of flora and fauna found on these 97 acres.

APPLIED RESEARCH:

Biological Richness of Headwater Streams – Openlands
LMCP Share - $23,949; Applicant Share - $23,949

The goal of this project is to determine species richness in selected headwater streams in the Lake Michigan watershed and make suggestions about how best to protect these headwaters and the aquatic life they support. The biological health of headwaters has a great impact on the biological health of downstream waters, including Lake Michigan. The species inventories and suggested protection techniques will add value to protection efforts and watershed planning of local groups such as Save the Dunes and the Shirley Heinze land Trust. In addition they will add value to the planning efforts of Northwestern Indiana Regional Planning Commission. At least 15 sites would be inventoried, and these sites were determined by an advisory committee consisting of project partners. A technical advisory committee would also be convened for this project composed of project partners and representatives from other local, state and federal agencies active in preservation of natural resources in the area. The technical advisory committee would determine the final protocols to be used for the biological inventories and, in some cases, assist with field work. Examples of headwater sites to be inventoried include Shirley Heinze's Ambler Flatwoods in LaPorte County and Moraine Nature Preserve in Porter County. Species assessed would include fish, macroinvertebrates (including snails), freshwater sponges, and other aquatic species. During inventories the condition of the creek will also be assessed and

processes that may have adverse effects on aquatic species will be noted, such as unnatural amounts of silt. Work will be done to determine the sources of the problems, and make suggestions as to how best protect the headwaters. The work may also include mapping and rough GIS analysis of how land use in the subwatershed might be affecting the stream. Information gathered for this project and suggestions made will be incorporated into the Save the Dunes watershed planning initiatives, the Shirley Heinze land Trusts' land protection efforts and Northwestern Indiana Regional Planning Commission's environmental planning efforts. The audience for this project is the local agencies and groups that do environmental and watershed planning in Northwestern Indiana. The public outreach strategy would include working with local agencies to include information about the project in their newsletters and on their websites.

Mapping Pre-European Vegetation of the Indiana Lake Michigan Coastal Area: a Template for Restoration and Management - The Morton Arboretum

LMCP Share - $24,320; Applicant Share - $24,320

Loss of natural habitats and altered fire processes have been primary causes of decline in terrestrial biodiversity in the Chicago region. Consequently, a key regional strategy is to use vegetation maps and data collected in the early 1800s by the U. S. Public Land Survey (PLS) to help set goals for restoration. This work has been completed using modern GIS technology for much of the Chicago region, but not northwest Indiana. The goal of this proposal is to address that need by providing a template for terrestrial habitat restoration and management in northwest Indiana based on landscape-scale maps and bearing tree data collected by the PLS as it surveyed township and section lines. The project will produce computer-based interactive GIS (Geographic Information System) maps based on geo-referenced data, and a quantitative analysis and interpretation of the relationship between landscape vegetation pattern and composition within the Lake Michigan Coastal Program Area. Secondary goals are to increase public support for restoration management, and to complete a regional data set for scientific analysis of pre-settlement vegetation composition, pattern and structure. A database containing the PLS notes and bearing tree data will also be provided.

Monitoring fungi in the ecological restorations of coastal Indiana – IU Northwest

LMCP Share - $49,700; Applicant Share - $49,700

Given the significant mycological expertise and research that exists in the coastal region of Northwest Indiana, the Northwest Indiana Restoration Monitoring Inventory (NIRMI) proposes to monitor fungi in a set of restoration sites that are currently monitored for plant communities. The proposed monitoring in 2012-2013 will be used in two ways: The data will (1) provide comparisons to several already well-studied reference sites in the region and (2) provide a baseline set of data so that the trajectory of the monitored restorations can be tracked into the future. To do this, NIRMI will expand its current monitoring protocols to monitor the macrofungi (i.e. mushrooms and other aboveground reproductive structures of fungi) in a subset of the sites in which NIRMI currently monitors plant communities. Since macrofungi tend to be most evident in wooded habitats and the already studied high quality reference sites and data available (Miller Woods, INDU HQ Woods, Cowles Bog have been studied in a spatially explicit way since the mid-1990's) are primarily wooded habitats, the sites that NIRMI will monitor fungi will primarily focus on a set of wooded restorations. Less wooded and open habitats (e.g. prairies) are relatively easy to survey for macrofungi (since they typically have fewer macrofungi) so a set of these types of sites will also be monitored.

The data collected in these fungal surveys will then be incorporated into the NIRMI database and website system (see www.nirmi.org). The informatics infrastructure for this will need to be designed and built as a part of this project. It will likely be similar to how the plant community data is currently

structured and stored (see www.nirmi.org). Comparisons to reference sites will also be made within the context of the NIRMI database and the comparisons made useful to restoration managers such that they have clear understanding of where a given restoration's fungi are relevant to a relevant reference site. The NIRMI database and website system resides in the Indiana University Information Technology system which allows for dynamic functionality and long-term data curation, security and access. Wyatt Gaswick will be the lead informatics specialist as he is currently the individual responsible for the NIRMI database-website system.

Purdue University (Purdue Water Institute) - Mercury Reduction from Municipal Effluents Discharged into Lake Michigan
LMCP Share - $50,000; Applicant Share - $50,000

There are approximately 59 municipal dischargers in portions of the states of Illinois, Indiana, and Michigan that release their treated effluents into southern Lake Michigan. The 59 municipal dischargers collectively release an estimated amount of 36.5 lb/year of mercury. Among these 59 municipal dischargers, three accounted for over 70% of the average mercury release. Hence, a 100% reduction of mercury from these three municipal dischargers would result in approximately 25 lb/year reduction in mercury into Lake Michigan.

This proposed project aims at removing mercury from municipal wastewater effluents that are discharged into the Lake Michigan and improving the mercury removal performance of the existing technologies employed by local wastewater treatment plants. In this project, the mercury concentration and form in selected municipal effluents will be characterized; two technologies (UF membrane process and iron coprecipitation coupled with dynamic sand filtration) will be applied to remove mercury from municipal wastewater samples; and the unit efficiencies in removing mercury for two local wastewater treatment plants will be assessed. The expected outcomes of this project include the understanding of the correlation between the mercury characteristics of municipal wastewater and the mercury removal performances of the two selected technologies; the optimized operational conditions for these two technologies; the feasibility evaluation of substantially reducing the release of mercury into the Lake Michigan; and the improvement of mercury removal efficiency for local wastewater treatment plant.

Purdue University (Purdue Water Institute) - Occurrence of Emerging Contaminants in Lake Michigan and Sensory Development
LMCP Share - $50,000; Applicant Share - $50,000

The goals of this project are to determine the presence of selected emerging contaminants (including 17β-estradiol, Acetaminophen, Carbamazepine, Diclofenac, Erythromycin, Estrone, Bezafibrate, Fluoxetine, Gemfibrozil, Ibuprofen, Lincomycin, Metoprolol, Naproxen, Ofloxacin, Sulfamethoxazole, and Triclosan are suggested chemicals to monitor) in the waterbodies within the watershed of Lake Michigan in Northwest Indiana (NWI), to assess the emerging contaminant removal efficiencies of technologies employed by local WWTPs, to conduct preliminary studies on the removal of selected emerging contaminants using membrane filtration technologies, and to evaluate the feasibility of using NMR (Nuclear Magnetic Resonance Spectroscopy) to determine the concentration of emerging contaminants.

These contaminants were selected based on analyte selection criteria such as occurrence and availability of analytical standards, chronological ecotoxicity and environment relevance concentration, volume of use, and priority ranking, as well as literature survey on environmental occurrence studies nationwide.

Michigan State University - Jeorse Park Modeling
LMCP Share - $40,000; Applicant Share - $40,000

The aim of this project is to use coupled hydrodynamic and bacterial transport modeling to evaluate the effectiveness of various remedial scenarios in reducing bacterial contamination levels at the Jeorse Park beach in East Chicago.

EMERGING ISSUES:

Examining climate change influence on nonpoint source pollution using NSPECT models for Lake Michigan - Purdue University Calumet
LMCP Share - $21,317; Applicant Share - $21,317

This project plans to develop an education and outreach module to take the N-SPECT model (Nonpoint Source Pollution and Erosion Comparison Tool) developed by the National Oceanographic and Atmospheric Agency (NOAA) Coastal Service Center to the user agencies by developing N-SPCET models for 4 different watersheds namely Deep River, Trail Creek, Little Calumet River East Arm and Salt Creek. In that process, nutrient and Total Suspended Solids (TSS) sampling will be conducted in 8 selected locations. These data will be used for the model development.

LOW-COST CONSTRUCTION:

Sunset Hill Farm - Children's Garden and Natural Play Area – Porter County Parks Department
LMCP Share - $25,000; Applicant Share - $83,270

Porter County Parks & Recreation is currently in the design process of constructing an environmentally sustainable education facility at Sunset Hill Farm County Park. This grant request is for the installation of a Children's Garden and Natural Path Area to accompany the facility. Funding will cover the cost of a topographic map, a soil survey, sustainable materials, solar lighting, interpretive signage and flora.

Merrillville Rain Garden Bioremediation Project - Town of Merrillville
LMCP Share - $18,357; Applicant Share - $22,026

This project entailed the construction of a rain garden (8739 ft 2) that will serve as a bioremediation area for roadway runoff located at 54th Court. This incorporated the LID green practices maximizing infiltration and phyto-remediation utilizing-several species of native plants and soil amendments. There is also an interpretive sign that is on display near the seating area within the rain garden to educate the residents about storm water quality. The location of this project is a center island that is owned and maintained by the town. Additionally the rain garden is bordered by a buffer zone of low-mow fescue that serves as an energy dissipater to prevent scouring and sediment deposition.

Oak Savannah Trail Hobart Prairie Grove Restoration - Lake Co Parks
LMCP Share - $5,478; Applicant Share - $5,478

The Oak Savannah Trail Hobart Prairie Grove Restoration was completed in November of 2013. This project removed invasive and non-native canopy trees on a stretch of the Oak Savannah Trail between I-65 in Gary and Wisconsin Street in Hobart. Many trees still remain along this stretch of trail, but the most invasive and lowest quality trees were removed which included Tree of Heaven, Siberian Elm, and Cottonwood.

Lake County Parks will use this restoration project to continue with similar projects into the future to restore and enhance additional acres along the Oak Savannah Trail.

Portage Township Way-finding Signs – Portage Township
LMCP Share - $15,000; Applicant Share - $15,000

"Find Our Township Parks" Project answers the need to raise awareness, identify and direct visitors to the park. Located in unincorporated South Haven, Indiana, the Township's two parks are situated in between the City of Portage and Porter County Parks Departments, as well as, South Haven Little League Field located just a mile down the road; leaving potential park visitors confused and wondering how to find the township parks.

Identification and way-finding signage was lacking and desperately needed. Lake Michigan Coastal Program's 2012 grant cycle's Low Cost Construction – Way-finding Signage to Public Lands answered the need to identify and lead visitors to the parks, as well as, raise visibility to the parks' amenities.

PLANNING:

Bringing History to the Marquette Plan Vision and Updating It's Tool Box – Regional Development Authority
LMCP Share - $50,000; Applicant Share - $50,000

The Bringing History to the Marquette Plan Vision and Updating It's Tool Box (Marquette Update) Project will enhance the existing value of the Phase I and II plans by enriching the planning context with the Cultural and Historical Resources Framework through the lens of economic development and integrating the updated, printed Plan with actual Marquette implementation projects using interactive GIS mapping capabilities and web-based platforms for multiple users. This project goal will be achieved through three core objectives:
First, it is proposed to add a unifying Cultural and Historical Resources Framework (CHR Framework) to the Marquette Plan. Both the 200S Phase I: Lakeshore Reinvestment Strategy and 2008 Phase II: A Vision for Shoreline Reinvestment includes five "Frameworks": Community Investment, Industry and Infrastructure, Green Infrastructure, Motorized Transportation, and Alternative Transportation. This new Framework will include a presentation of cultural and historic resources within the Marquette planning area that builds the work of previous publications such as "The Coastal Historic and Cultural Resources Study of the Lake Michigan Watershed" by LMCP, the "Beyond the Beach Discovery Trail" by Indiana Dunes Tourism, the "the Future of Indiana Dunes National Lakeshore" by National Parks Conservation Association and others. The CHR Framework will then sharpen the focus on projects with potential to demonstrate how reinvestment in these landmarks can serve as a catalyst for economic development and community revitalization. This objective will be primarily developed by Indiana Landmarks Foundation as a contractual partner.

Second, the project will produce a Marquette Update which seamlessly integrates the new CHR Framework with a combined update of both the Phase I and II reports. The Update will highlight

successful Marquette projects and partnerships, identify new opportunities, and summarize lessons learned over the past seven years. It will be an attractive, easily accessible document, available in print and on-line and useful as both a stand-alone promotional product and a supplement to the original plan phases. This effort will include staffing of the Marquette Advisory Committee (MAC) so that the group can provide active leadership in the update. NIRPC will be the primary RDA contracted partner for MAC staffing and document preparation.

Third, it is proposed to develop a comprehensive geodatabase for the Marquette Plan that can be shared and utilized by all entities responsible for Marquette Plan's implementation and promotion. The GIS database will include existing data layers as well as the CHR Framework data and parcel level data sets to be compiled. In addition, we will develop a Marquette Plan on-line GIS to be available to the public and will be promoted through a Marquette Plan brochure and website under ongoing development by the RDA. Although the format of the on-line GIS is not pre-determined, an example of similar GIS portal can be seen at http://gis.waterburyct.orgfFlexViewer/flexviewerl.3/. NIRPC will be a contracted partner for completing this project objective.

Town of Chesterton - Westchester -Liberty Trail Planning Phase 2
LMCP Share - $25,000; Applicant Share - $25,000

The Town of Chesterton will utilize the funding from the Lake Michigan Coastal Program to design Phase 2 of the Westchester-Liberty Trail. The design of Phase 2 will facilitate the town to receive additional grant monies to complete this project. The Westchester-Liberty Trail will improve the town's local and regional pathway interconnectedness, and will make Chesterton High School and Westchester Intermediate School accessible via the Prairie-Duneland Trail. The Town's plan is to construct the trail inside the right-of-way of CR 1100N, which has a high volume of vehicular traffic and no contiguous pedestrian/bicyclist access. This has created a need for a designated non-vehicular multi-use trail to provide residents with an alternate means of transportation. The Westchester-Liberty Trail will comply with the American with Disabilities Act by having handicap accessibility at the trailhead in Dogwood Park and all street crossings will meet ADA standards.

IUN – NIRMI - Enhanced Plant Identification Education in Northwest Indiana
LMCP Share - $5,000; Applicant Share - $5,000

This grant will improve the plant identification education in the region. This will be done by training NIRMI interns plant identification in various ways. The best method will then be selected; educational tools will be developed and dispersed throughout the region.

NIRPC - East Chicago Field School and North Harbor Connections Sub Area Plan
LMCP Share - $5,000; Applicant Share - $5,000

The City of East Chicago is in need of a sub-area plan and annotated poster plan to assist them in soliciting post-secondary institutions to invest in the former Field Elementary School property as part of the city's ongoing North Harbor Neighborhood redevelopment efforts. The Field School is in an Environmental Justice area, it was remodeled several years ago, and it is currently being underutilized. The proposed Field School Sub-Area Plan will include recommendations for creating a sustainable post-secondary campus and assist in meeting the social, historic, and economic needs of the targeted redevelopment area. Ecological concerns and water quality improvements are also being addressed through a grant from the Dorothy and Gaylord Donnelly Foundation, in partnership with NIPRC and their Green Infrastructure Planning Pilot Project, which will result in a green infrastructure plan for this property and the North Harbor Neighborhood. The combination of the proposed sub-area plan and

green infrastructure plan will provide the City of East Chicago, and post-secondary institutions, guidance in creating a balance between environmental systems, quality of life, and economic vitality.

City of East Chicago, Planning and Economic Development - Indiana Harbor Architectural/Structural Review of Six Buildings, 3700 Main St. Block
LMCP Share - $5,000; Applicant Share - $5,000

The project conducted conditions assessments and structural/architectural analysis of six commercial buildings constructed between 1910 and 1930.